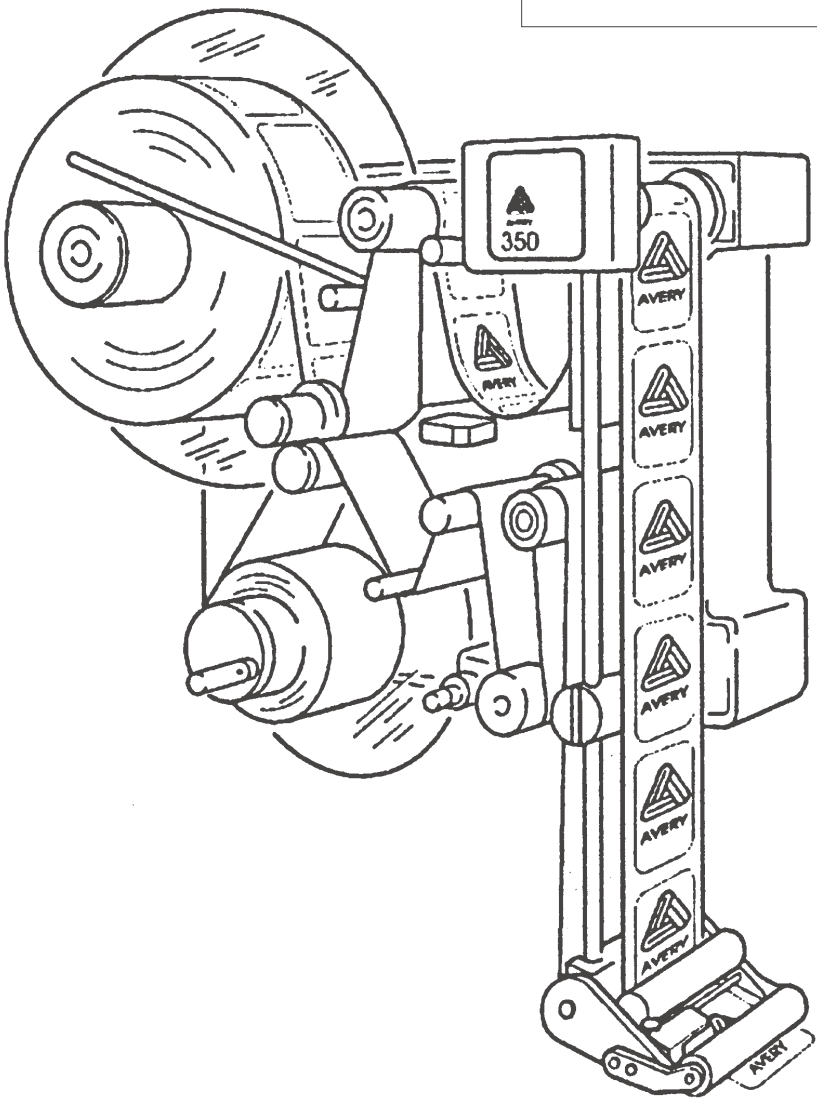
ALS 341

User Manual

AVERY DENNISON



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1. Important Notes

1.1 Overview

The Avery ALS341/441 are fully automatic labeller. Operating is easy and can be learned with a minimum of training. The labeller is controlled by a microprocessor allowing the labeller to be programmed for use in a variety of labelling environments. Except for cleaning the rollers and photo-sensors no other regular maintenance is necessary.

This manual should help you to operate the machine.

For technical questions, particularly in case of problems, your local AVERY organisation will be pleased to help you.

1.1.1 Manufacturer

This machine was built by:

AVERY Maschinen GmbH
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1.1.2 Copyright

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1.2 Safety notes

General Safety Notes

Warning Notes in the Text

In this description, two types of notes can be found:

- *Warning note* – indicates a possible risque of injury for the user. Ignoring the warning can lead to injuries or material damages.
  Example:

CAUTION! - The machine is connected to mains. Only authorised personnel may open the cover. Operation without this cover is not allowed.

- *Special advice* regarding the carrying out – please notice!
  Example:

Note: Please take note of the given notes and advices. They serve your safety as well as the preservation of value of the machine.

1.2.1 Operator’s duty of care

The machine was designed and constructed taking into account a hazard analysis and after careful selection of the harmonised standards to be observed, as well as other technical specifications. Thus, it corresponds to the state of the art and allows the highest possible degree of safety during operation.
The safety of the machine, however, can only be put into operating practice if all measures required for the safety are taken. It falls within the operator‘s duty of care to plan these measures and to verify their implementation.
Above all, the operator must make sure that

- the machine is only used in accordance with its purpose (cf. the section “Use in accordance with the purpose” in the chapter “Specification”)
- the machine is only operated in faultless serviceable condition and that especially the safety devices are regularly checked with respect to their serviceability
- the required personal protective clothing and equipment for operating, maintenance and repair personnel are available and are being used
- a legible and complete copy of the operating instructions is always available at the place of operation of the machine
- only personnel which is qualified and authorised for it will operate, service, and repair the machine
- this personnel is instructed in all relevant issues of occupational safety and environmental protection on a regular basis and is familiar with the operating instructions and especially the safety instructions contained therein
- all safety and warning instructions on the machine itself are not removed and are legible

1.2.2 Concrete security regulations and symbols used

In the following operating instructions, concrete security regulations are indicated in order to point out the remaining risks which cannot be avoided when operating the machine. These remaining risks include danger to

- Persons
- Product and machine
- Environment

The symbols used in the operating instructions are above all intended to point out the security regulations!

This symbol indicates that especially danger to persons has to be expected.
(Lethal danger, danger of injury)

This symbol indicates that especially danger to the machine, material, and the environment has to be expected.

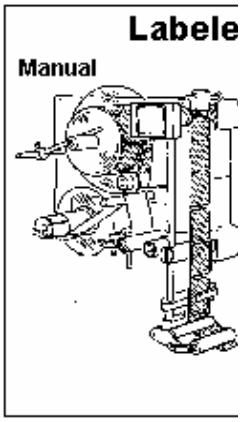
The most important aim of the security regulations is to avoid injuries to a person.

- Whenever there is a warning triangle with the caption **“Danger”** in front of a security regulation, dangers to the machine, materials, and the environment are not excluded.
- Whenever there is a warning triangle with the caption **“Warning”** in front of a security regulation, a danger to persons, however, must not be expected.

The symbol used in each case, however, cannot replace the text of the security instruction. Thus, it is necessary to always read the text completely!

This symbol does not indicate security regulations, but provides information for a better understanding of the machine’s operations.

1.2.3 Security measures during normal operation



The machine may only be operated by trained and authorised persons who are familiar with the operating instructions and are able to work in accordance with it!

- Before starting the machine, check and make sure that
- only authorised personnel is staying in the operating area of the machine
- Nobody can get hurt when the machine is started!
- Before every production start-up, the machine must be checked for visible damage and it must be made sure that it is only operated in faultless working condition! Any defects found must be immediately reported to the supervisor!

Before every production start-up, all materials/objects that are not necessary for production must be removed from the operating area of the machine!
Before every production start-up, it must be checked and made sure that all safety devices function in a correct manner!

1.2.4 Security measures during maintenance and repairs

Inspection and maintenance periods laid down in the operating instructions must be observed!
Observe maintenance and repair instructions in these operating instructions, which refer to individual components!

Before performing maintenance and repair work, the access to the operating area of the machine must be prohibited for unauthorised personnel! Post or put up a sign, which indicates the maintenance, or repair work!

Before performing maintenance and repair work, turn off the main switch for the electric power supply and secure it with a padlock!. The key to this padlock must be in the hands of the person who performs the maintenance or repair work!
When exchanging heavy machine parts, use only suitable and faultless load suspension devices and stopping devices!

1.2.5 Work on the electrical equipment

Repair work on the electrical equipment of the machine may only be performed by a trained electrician!
Electrical equipment must be checked on a regular basis!
Loose connections must be fixed again!
Exchange damaged lines/cables immediately!
Always keep the switch cabinet closed! Access is only allowed to authorised personnel with keys/tools!
Never wash down switch cabinets and other housings of electrical equipment with a water hose for cleaning!

1.2.6 Work on pneumatic equipment

Maintenance and repair work on pneumatic equipment may only be performed by specially trained personnel!
Before starting maintenance and repair work, depressurise the pneumatic equipment of the machine!
By way of precautionary maintenance, exchange hose pipes on a regular basis, even if there is no damage to be detected!
(Observe the manufacturers' instructions!)
Before setting into operation after maintenance or repair works

- check if loosened screwed connections are tight
- make sure that removed coverings are re-installed

After termination of maintenance and repair work and before re-starting the production, make sure that

- all materials, tools, and other equipment required for maintenance and repair work are removed from the operating area of the plant
- all safety devices of the plant function in a faultless manner!

1.2.7 Observe environmental regulations

During any and all work on and with the machine, the statutory duties concerning prevention of waste and the proper waste disposal/recycling regulations must be observed.
Especially in the case of installation, repair and maintenance work, substances which are hazardous for the water, such as detergents containing dissolvents, may not pollute the soil or get into the sewage system!
These substances must be stored, transported, collected, and disposed of in appropriate containers!

2. Short form instruction

This chapter contains a short instruction to handle the machine.

CAUTION! - The machine is connected to mains. Only authorised personnel may open the cover. Operation without this cover is not allowed.

Note: This manual applies to ALS341/441 machines equipped with software version 4.3 or higher.

2.1 Operator panel

During normal operation the keys on the panel has the following functions:

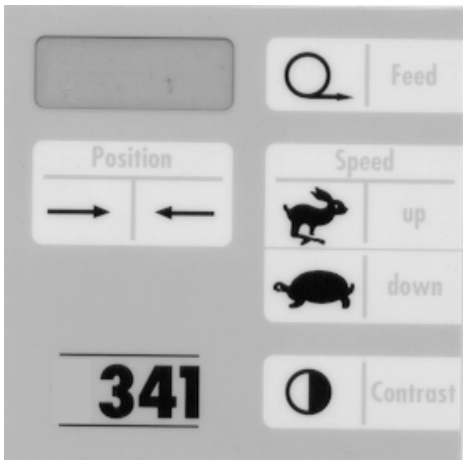


Figure 1 Operating panel

Feed: Dispense one label. Used to position the labels correct, after threading new material or fixing an error situation.

Speed: Setting the dispensing speed faster (up) or slower (down). The display shows S25*0*, which means a dispense speed of 25.0 m/min. With the both keys a value from 2m/min up to 55m/min can be set.

Position: Adjust the position of the label onto the product. The display message 050 means that the dispensing will be started 50.0 mm after triggering the product sensor by the product. Pressing the key → decrease the shown value. The label

will be placed closer to the front side of the product. The possible variation of the value is 10mm up to 999.9mm.

Contrast: This function adjusts the sensitivity of the standard optical label sensor. If the function is called, the display shows maybe CX30. The C indicates that the Contrast function is active. **In this mode, the machine doesn't react to a product start**. The X appears in the display when the label sensor detects a label on the label web. The X in the display corresponds to the yellow LED on the label sensor.

The value (0-63) represents the sensitivity of the sensor.

To change contrast values press the Contrast key. If you hold the key for approximately one second, the counting direction in the display reverses.

2.2 Service menu

In these menu settings can be done to configure the machine. In addition, some test functions are available. The access to this menu is protected by a password.

- The sequence to enter the password will be started by pressing simultaneously both speed keys.
- If CODE is displayed enter the password:

  1 * Speed up
  2 * Speed down
  3 * Contrast

These are the functions within the service menu:

P_S_ Selection leading or trailing edge of product start sensor
S_S_ Selection leading or trailing edge of label start sensor
PRDL Product length (to disable multiple label starts)
ON3F Enable error message for rewinder
LOOP Loop speed control: Fast (250) or smooth (2000) speed
MDIR Machine dispense direction
DTST Continuos test
I_CH Input check
O_CH Output check
RWCH Position dancer arm of rewinder
LABC Label counter
QUIT Leave menu

2.2.1 Handling the service menu

Select a function: Press FEED key
Select value of a function: Press Contrast key
Change value of a function: Press FEED key
Back to select a function: Press Contrast key

Leave service menu: Press Contrast key until QUIT is displayed, then press Contrast key again.

3. Starting the labeller

In this chapter, the steps to prepare the machine will be described.

3.1 Installation

3.1.1 Unpacking of the unit

- For removing the unit off the box, don't hold the machine on the dispensing edge to prevent disadjustment off the machine.
- For mounting the machine, a complete system of holding tools is available. Ask your representative.
- Take care that the machine is safe and stable mounted.
- There are rotating parts on the machine. Do the necessary actions to prevent that anybody can be caught from these parts.

3.1.2 Connection of the machine

Before connecting the machine to the mains, check the correct setting of the line voltage. For the connection of sensor, applicators e.g. see the chapter connections. Fix all cables to prevent accidents and damaging of cables. Have also a look to the EMI chapter for proper machine operation.
For checking of correct operation of sensor's, applicators use the check functions I_CH, O_CH and RWCH.

3.1.3 General setting

Normally the setting is done, but before operation check and note the general dispenser configuration: dispenser direction, sensor polarity.

3.2 Mounting a new label roll

The threading path of the labelling material through the labeller is shown in the diagrams below. A threading diagram is also affixed to the machine's front-plate for easy reference.

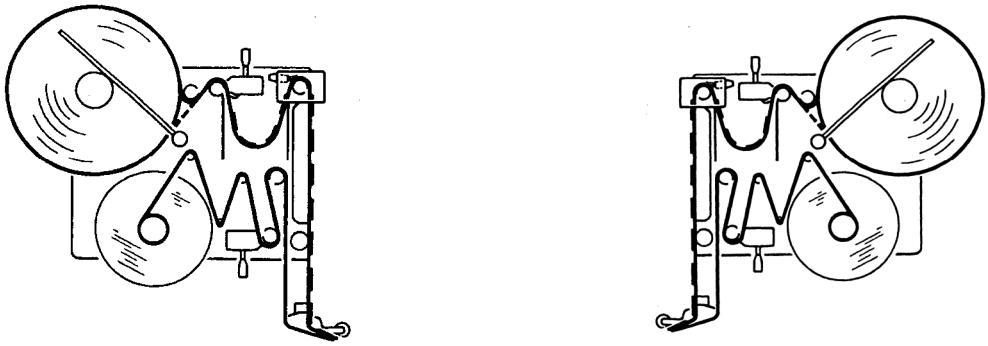


Figure 2 Threading diagram Type 341

Figure 3 Threading diagram Type 441

Before threading the new material, any waste backing paper should be removed from the rewind mandrel as shown in the diagram below.
Turn the lever to retract the expandable pads. The waste backing paper can now be easily pulled off the rewind mandrel.

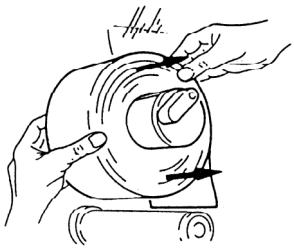


Figure 4 Rewind

Swing the retainer arm away from the unwind mandrel and take off the old label roll. Push the new label roll onto the unwind mandrel. Swing the retainer arm back onto the unwind mandrel

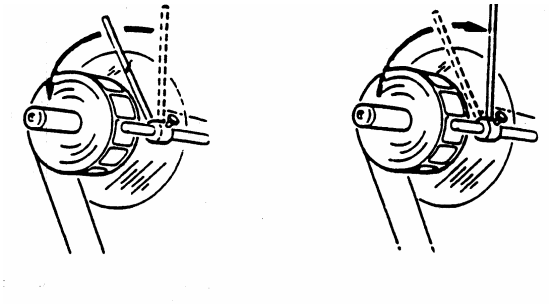


Figure 5 Unwind ALS 341

After threading the backing paper around the roller and shaft of the dancer-arm next to the rewind mandrel, insert the edge of the backing paper into the slot of the rewind mandrel and clamp it there by turning the lever.

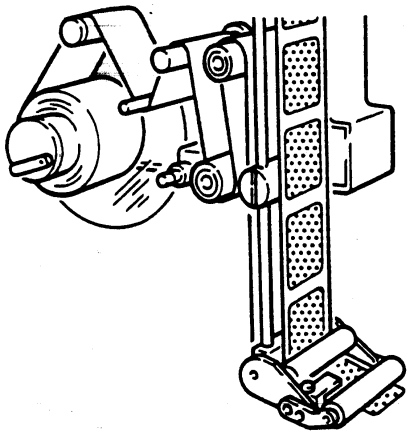


Figure 6 Threading dispensing edge

Adjust the pressure rollers so that they are positioned over the middle of the material. Adjust the brush so that it applies no more pressure to the label web than is necessary to keep it tight during dispensing. If there is more than one brush fitted, only the brush before the label sensor should be adjusted with any significant pressure; any other brushes should apply only the minimum pressure required to hold the label web in position.

3.3 Setting the applicator roller

For some applications, it may be necessary to move the applicator roller relative to the dispensing edge. To do this, loosen the two screws indicated in the diagram and pivot the roller to the correct position before re-fastening the two screws.

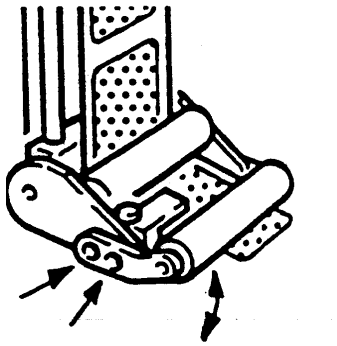


Figure 7 Applicator roller

3.4 Changing the position of the dispensing edge

If your machine is equipped with a lead-screw adjustable dispensing edge, you may change the position of the dispensing edge relative to the product. The lead-screw adjustable dispensing edge allows adjustment towards or away from the product. The position can be read from the scale on the dispensing arm bars.

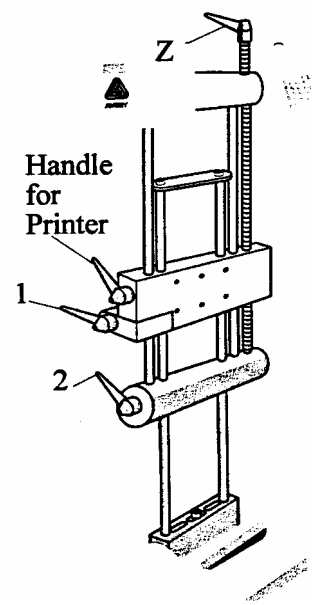


Figure 8 Adjustable dispensing edge

Adjustment dispensing edge
After loosening handles 1 and 2, handle Z can be turned to adjust the dispensing edge position. Once the adjustment is completed, tighten the handles 1 and 2 again.

Printer adjustment
If your labeller is equipped with a printer, you can adjust the print position as well with the handle Z . In this case loosen the orange printer handle and handle 1 before turning handle Z . Once the adjustment is complete, tighten the handles again.

3.5 Adjustment of the contrast

- Remove a label from the backing paper and slide it inside the sensor.
- Increase the value with the Contrast key until the LED switched on.
- Press the contrast key until the LED switched off. If there are marks on the backing paper do the measurement on this position.
- Note the value GAP xxx
- Slide the backing paper including label inside the sensor. Use the lightest position on the label for the adjustment.
- Reduce with the contrast key the value until LED lights again. Note the second value GAP yyy
- Calculate the contrast value by the formula (xxx + yyy) / 2 and set it.
- The adjustment is completed.

With a difference of less than 6 an operation with this kind of sensor is not possible (sometimes two or more labels are dispensed).

3.5.1 Capacitive label sensor

For transparent labels the standard photo label sensor doesn't work. In this case, use a mechanical or a capacitive label sensor.
For correct automatic initialisation, the contrast setting has to be set to any value, if you using not the standard photo sensor.

A mechanical sensor is limited in the speed. The bounce at the label edges produces wrong signals.

There is optional a capacitive label sensor available (Leuze GK14/24L).
Adjustment of the sensor is carried out as follows:
Set sensitivity to maximum by **turning the Potentiometer clockwise. Then** rotate ½ turn anticlockwise.

1. Remove label material out of sensor.
2. Perform base adjustment, that both LED "base adjustment" have the same brightness.
3. Put label with backing paper inside the sensor. Doing this, the LED "switch output" and the left LED "base adjustment" are switched off. With backing paper only in the sensor both LED are switched on. If the LED are lightning with label inside the sensor, increase sensitivity in ¼ turn steps by rotating the sensitivity clockwise.
4. Check the adjustment over the complete length of label.
5. Carry out the above adjustment after mounting, cleaning or increasing sensitivity.

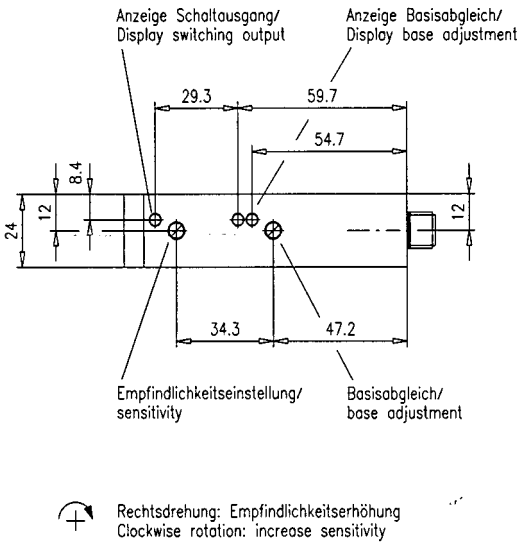


Figure 9 Capacitive sensor

3.6 Label guide

On some of the axles, they're guiding clamps. Adjust the clamps near the machine so all have the same distance to the front plate (31.5mm). The outer clamps should be mounted that the guide but not bend the label material.
With an L-dispensing edge, the adjustment is done by move the tail sheaves behind the dispensing edge. Sometimes the front of the dispensing edge has a rot, which can be adjusted for straighten the material guiding. Spend several labels by pressing the dispenser FEED key. If the material guiding is running out of the guiding way, adjust the rot by loosing two screws at the dispensing edge.

3.7 Adjust dispense function

For an operation without any trouble and high label accuracy, tree adjustments are required:

- Label position on the dispensing edge: stop position
- Dispense speed
- Label position on the product

The adjustment should be done in the same order, because parameter like the stop position depends on the setting of the stop position and the dispensing speed.

3.7.1 Stop position

The first step is to adjust the stop position. This is the basic adjustment of the dispense process. Also in case of problems with the machine check if the stop position is okay.

Figure 10 Stop position

The stop position should be adjusted so that the label stops at the dispensing edge up to 3 mm behind.
The adjustment is done by moving the label sensor.

3.7.2 Labelling speed

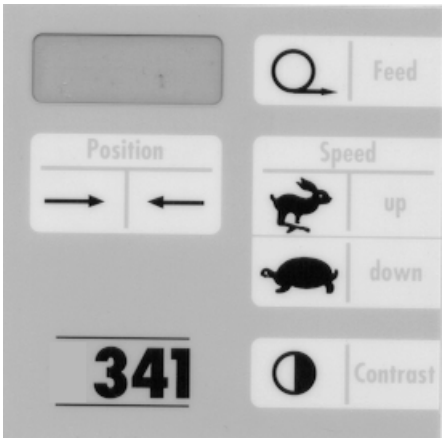
Set Position to the distance between start sensor and dispensing edge. If installed remove the roller to press the label onto the product. Now try to dispense one product. If the label has wrinkles reduce the speed with the Speed down key. If the product peels out the label, so the stop position of the next label is different to the last position increase the speed. Normally your dispense speed should be a little bit higher than your product speed.

3.7.3 Label position on the product

At least adjust the position of the label on the product with the position keys.

4. Operation

The operator panel allows an easy operation of the machine. There are 4 functions to operate the machine.



In the service menu, the service technician has the possibility to configure the labeller according to your application. This men menu is only for technician and therefore protected.

4.1 Direct functions

The operator panel has a four-character display and 6 membrane keys. Each key has one individual function.

Feed: Single start for one label.
Display: OKAY

Speed up: Higher dispensing speed
Speed down: Lower dispensing speed
Display: S02*0* until S55*0*. The last digit is blinking to indicate the fractional part of the number.
The message S02*0* means 2.0m/min and S55*0* means 55.0m/min.

Position ➔: The label position on the product will be moved right.
Position ➔: The label position on the product will be moved left.
Display: 010*0* up to 999*9*. The last digit is blinking to indicate the fractional part of the number.
The message 010*0* means 10.0mm and 999*9* means 999.9mm.
Attention: The start sensor should be positioned 10-30mm before the dispensing edge.

Contrast: Setting the sensitivity of the label sensor.
Display: CX00 up to CX63. The X indicates the detection of label material in the sensor.

4.2 Service menu

The service menu contains function to configure the machine and check functions.

4.2.1 Calling the menu

The service menu is protected by a password. The sequence to enter the password will be started by pressing simultaneously both speed keys. CODE is shown on the display. The password is entered by pressing these keys:

1 x Speed up key
2 x Speed down key
3 x Contrast key

If all is correct, P_S_ is shown in the display.

4.2.2 Working with the service menu

Select a function
By pressing the FEED key, all functions are visible in the display.

Call a function
The shown function is called by pressing the Contrast key. The current function setting is shown.

Change function value
The setting will be changed by pressing the FEED key.

Back to select a function
Pressing the Contrast key returns to the level to select a function.

Close the service menu
If the Contrast key is pressed during the QUIT function the service menu is closed and the software goes back to the direct functions.

4.2.3 Menu functions

The service menu contains these functions:

Polarity product sensor _____ P_S_

This parameter inverts the switching logic of the product-sensor input. This can be used to trigger the product sensor input on either the leading edge or trailing edge of the product.
TEDG = trailing edge detection
LEDG = leading edge detection

Note: The meaning of the LEDG and TEDG displays will be inverted if the product sensor does not supply a positive going signal as it detects the leading edge of a product.

Polarity label sensor _____ S_S_

This parameter inverts the switching logic of the label sensor input. This can be used to trigger the label sensor input on either the leading edge or trailing edge of the label.
TEDG = trailing edge detection
LEDG = leading edge detection

Note: Missing label compensation only works with label leading edge detection.

The meaning of the LEDG and TEDG displays will be inverted if the label sensor does not supply a negative going signal as it detects the leading edge of a label.

Product length _____PRDL

This parameter defines the length of the product to be labelled. After the product-sensor has detected the edge of the product all further signals from the product-sensor are inhibited. This parameter can be helpful in cases where the product is transparent or has several detection marks or edges. Such a case is shown in the diagram below.

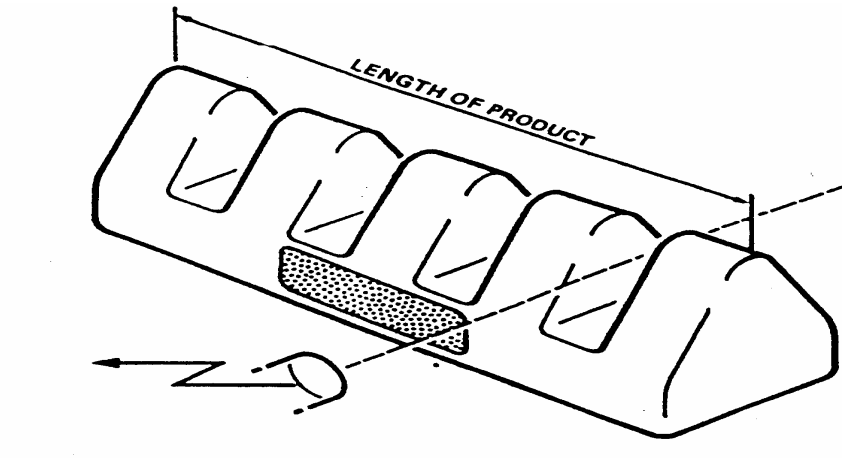


Figure 11 Example for product with multiple startsignals

The range for the "PRDL" parameter is from 5mm to 999mm.

Error message rewinder _____ONF3

The error message F3 can be enabled (YES) or disabled (NO). The error message will be generated, if the dancer arm of the rewinder is more than 3 seconds in the home position (web brake).

Adjust loop control _____ LOOP

With the loop function, you may change the operation of the loop control in accordance to the label length you are using in the application. The factory value of 700 is an average value that works well with the most of the applications. If you see a need for optimisation because of an inconsistency in the loop the following rules apply:

1. A higher value makes the loop control running optimised smoothly and is recommend for short labels.
2. A smaller value has to be used for running of long labels.

□□□▣	input 1 connector CN5 pin 11/12	TBD
□□▣□	input 2 connector CN5 pin 13/14	Material end sensor
□▣□□	input 3 connector CN5 pin 15/16	OD - control
▣□□□	input 4 connector CN5 pin 17/18	label inhibit input

Motor direction _____ MDIR

This parameter is used to specify the running direction of the labeller's motors.
Possible values are "<---" and "--->" to suit a left-hand or right-hand machine respectively.
This parameter is already set at the factory.

Test run of labeller _____ DTST

This parameter is used to test run all three motors of the labeller.
OFF The motor do not cycle.
STOP The loop motor, the dispense motor and the rewind motor cycle on and off.
ENDL The motor runs without any stop.

Note: If the loop photo sensor is blocked, then only the rewind motor will cycle.

Test of the labeller inputs _____ I_CH

This parameter is used to check the labeller inputs.

Product-sensor test
Press the FEED key to check the product sensor input.

The display format is: X--- or 0---

Note: As the product-sensor is triggered the first character of the display should toggle between "X" and "0".

External control inputs
Press the /\ arrow key to check the external control inputs.
"0" indicates the input is not active
"X" indicates the input is active

Test of outputs _____ O_CH

O_CH function enables you to check all outputs on connectors CN6 and CN10. The test shows the current output state. For test you can toggle the current state. After function call the display shows OUT? Leave the function by pressing ENTER.
CN6 are opto coupler outputs, while CN10 are 24V high side output drivers.

Test of the optocoupler outputs

Press FEED, Display shows XXXX

0 indicates that relevant output is not switched.

1 indicates that the output is active.

☐☐☐☒	CN6 pin 26/27	Ready output	Press FEED for toggle
☐☐☒☐	CN6 pin 23/24	Warning output	Press PRIOR for toggle
☐☒☐☐	CN6 pin 21/22	Error output	Press NEXT for toggle
☒☐☐☐	CN6 pin 19/20	Printer output	Press ENTER for toggle

You may jump back to O_CH menu by pressing all 6 keys together.

Test of the driver outputs

Press PRIOR, display shows LLLL

-	indicates that the relevant output is not switched
+	indicates that the relevant output is switched on
L	no load is connected to the output
K	there is a short circuit (for example a broken wire) at the output
TEMP	indicates an over temperature situation on the driver.
VOLT	indicates that the supply voltage is too high

Each digit of the display toggles the representative output, when you press the corresponding panel key:

☐☐☐☒	CN10 pin 9/10	Printer	FEED for toggle
☐☐☒☐	CN10 pin 7/8	Pneum. dispensing edge	PRIOR for toggle
☐☒☐☐	CN10 pin 5/6	Motor run signal	NEXT for toggle
☒☐☐☐	CN10 pin 3 /4	ODC output	ENTER for toggle

You may jump back to O_CH menu by pressing all 6 keys together.

Rewind check_____RWCH

According to the position of the rewind dancer arm a varying signal level is received at the labellers rewind dancer arm input. This value can be displayed with the RWCH parameter. When the dancer arm is in the home position the display should show zero. When the dancer arm is in its end position (extended) the display should read between 220 and 240. If this is not the case then the rewind internally mounted rewind coder disk and rewind adjustment potentiometer should be adjusted as described in the chapter "Servicing the labeller".

Label count_____ **LABC**

This parameter is used to show how many labels have been dispensed by the labeller since installation.

The number of labels dispensed is displayed in the format:

Mnnn Knnn .nnn

where M represents millions
K represents thousands
.represents units

On entering the "LABC" parameter the units are displayed. By using the arrow keys can then be used to change between the millions, thousands and units displays.

Leave configuration_____ **QUIT**

This menu point is used to go back to the direct functions.

5. Messages and Troubleshooting

The control checks continuously the status of the machine. If something goes wrong, relevant messages are displayed and simultaneously an output signal is supplied. This output signal can be used as a control signal to an external control.

5.1 Warnings

If the labeller control distinguishes a situation, which is not in order, however, the labeller continuous to work, a warning message is displayed: e.g. WA_2.

WA 1 Hardware fault
The data are set to the default value.

- All settings have to be entered again.
- Use the table below to note your setting
- If the warning is indicated more frequently, you should call for service, to get the battery on the CPU board exchanged.

Function	Default value	Note your setting
MDIR	➔	
LABC	0	
P__S	LEDG	
S__S	LEDG	
ONF3	ON	
LOOP	700	
Speed	30.0 m/min	
Position	10,0 mm	
CONT	56	
PRDL	5 mm	

WA 2 OD control
The label material is nearly at the end. This indication need that the optional OD control is installed.

5.2 Error messages

For most of these errors, the labeller can not operate until the cause of the error is removed. The labeller stops operating and a signal is supplied at the error output. You may restart the labeller by pressing the ENTER key once you have cleared the error situation. The ready output goes off.

Message	Description	How to solve
F1	Loop will not be filled loop sensor not activated	Normal if end of material else • pressure roller not closed • check function of loop sensor • clean mirror • readjust potentiometer of loop sensor • unwind motor is not running
F2	Labeller doesn't detect the start of a new label	Normal message at • End of label material • More than 3 missing label on the web else check • pressure roller not closed • label web is not correctly threaded through the label sensor • Label did not start from the correct start position • while the label sticks to the product, it pulls the backing material may be because of different dispense and product speeds • Label length is shorter than label pitch entered • Wrong adjustment of label sensor CONT • Loop empty • drive motor is not running
F3	Indicates a problem with the rewind function.	End of material or label web broken Check if rewind motor is running at all
E_15	Short circuit or fault condition on of the outputs of CN10.	Check the connections on the outputs. Call the function O_CH to get more information.

If the problem reoccurs and in all other cases you need to call your Service Technician.

5.2.1 Processor error

If the processor detect an illegal condition one of the following error messages will be displayed. The machine stops immediately. The ready output is switched off.

ER-U An undefined interrupt was requested.
ER-I Illegal processor instruction.
ER-D Division error.
ER-T Undefined software interrupt.
ER-A Address error.

If one of these errors appears, press the ENTER key and note the displayed information. Note also the used software version you can see on power on the machine, what happened before the error occurs and contact your Service Technician.

5.3 Trouble shooting

If your machine doesn't work call your Service Technician. The following trouble shooting table is only for experienced user.

Problem	**How to find it**	**How to solve it**
No machine function	Lamp in main switch doesn't light	Replace fuses located on screw terminal. Check power connections for damaged wires
One of the stepper motor doesn't work	Green LED of stepper motor driver doesn't light or red LED lights	Check motor supply voltage not > 110V AC Replace driver **Don't repair the stepper motor driver!**
No 24 Volt supply	Green LED on rectifier board not lightning Fans not running LED D2 on CPU board not lightning	Check fuse on rectifier board
No display	LED D4 on CPU board not lightning	Check fuse F2 on CPU board
Wenglor label sensor doesn't work	LED D3 on CPU board not lightning LED on sensor not lightning	Check fuse F1 on CPU board
	LED on sensor okay but label doesn't stop	Check jumper JP3 inserted

6. Electrical connections

WARNING! - The machine is connected to mains.
- **Only authorised personnel may open the cover.**
- **Disconnect from the mains before opening the covers.**
- **Operation without cover is not allowed.**

6.1 Power supply

Select the line voltage on the transformer so that the voltage for the stepper motor driver not exceeds 110 VAC.

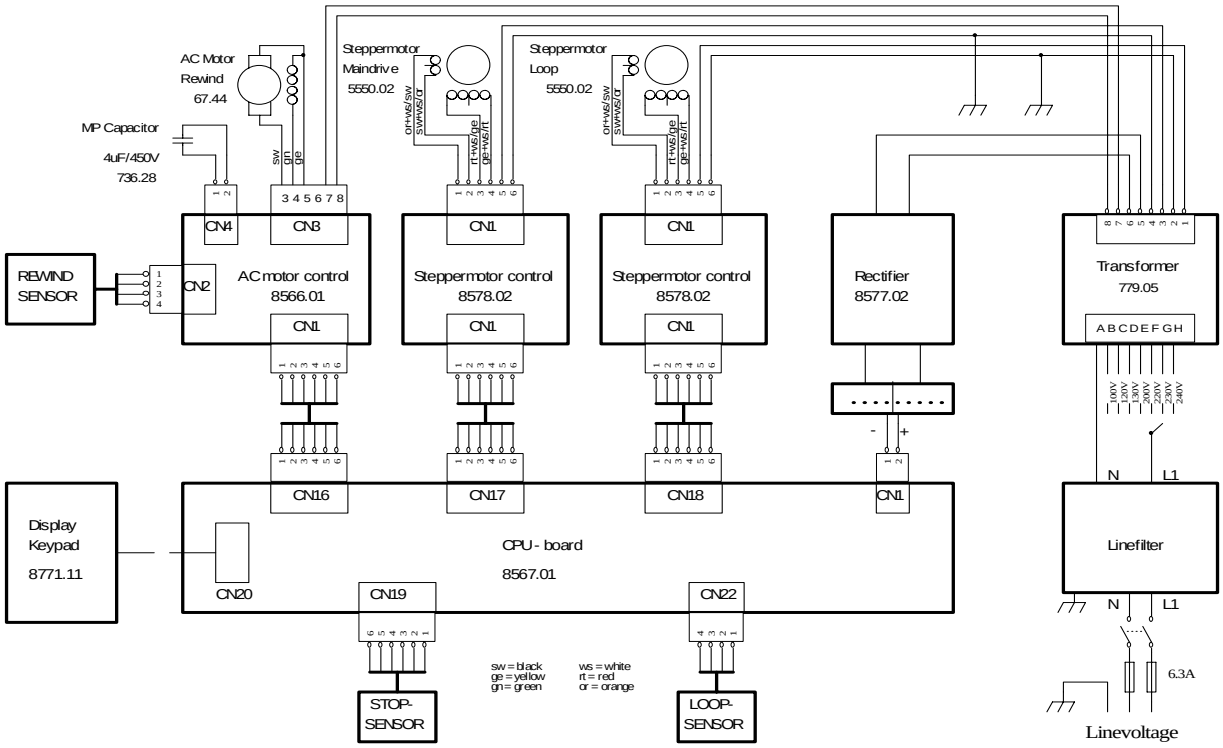


Figure 12 Line supply

6.2 Location of the electronic control boards

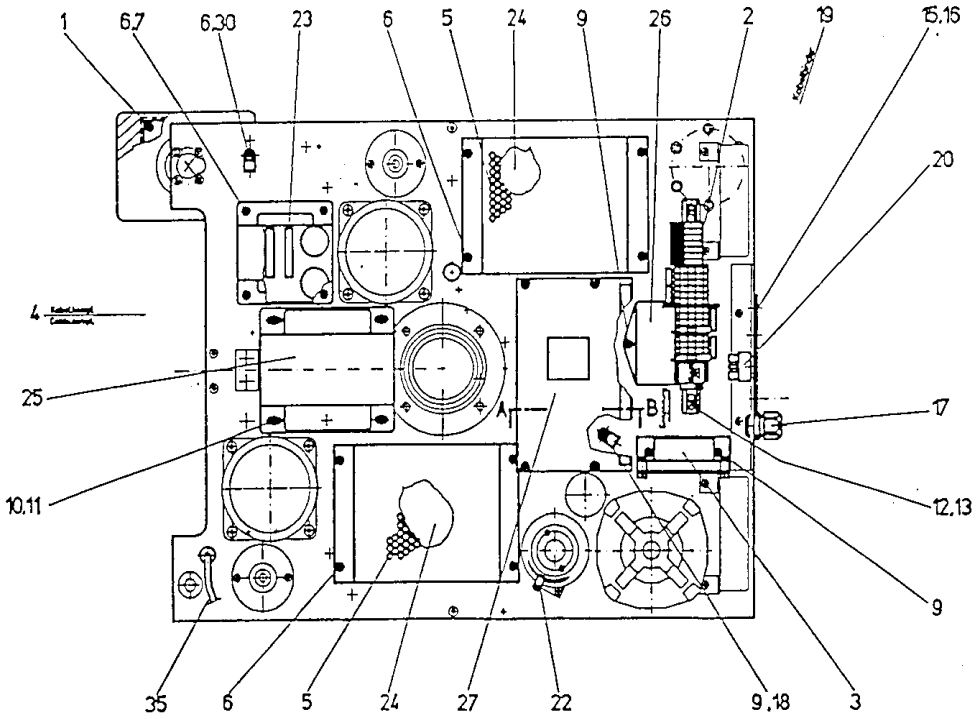


Figure 13 Electrical components

Position	Description	Order no.
1	Operator Panel	0008576-01
2	Mains screw terminal	0009305-01
3	AC-motor control board for rewind motor	0008566-01
20	Main switch	0001510-05
22	Rewind sensor	0008257-01
23	24 V rectifier board	0008577-02
24	Stepper motor control boards	0008578-04
25	Transformer	0000779-05
26	Mains interference filter	0006009-01
27	CPU control board	0008567-01
35	Label sensor	0005082-06

6.3 Stepper motor control

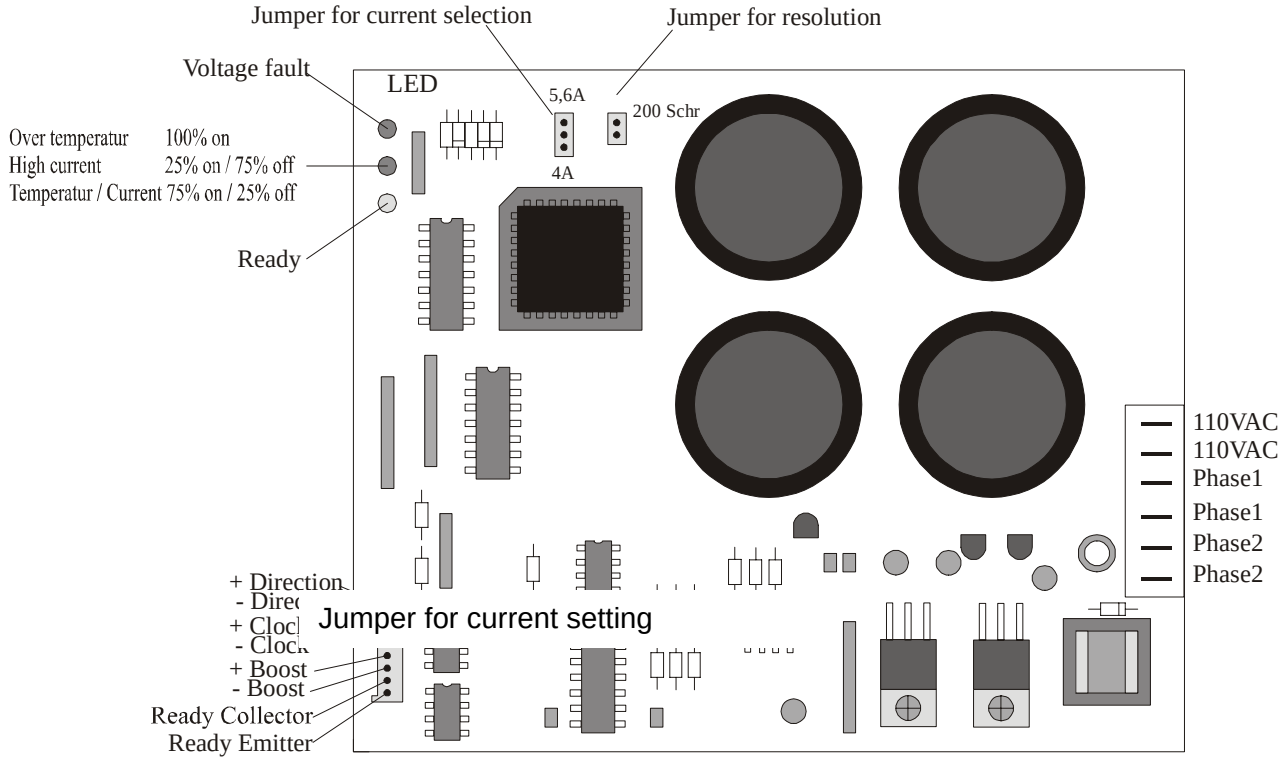


Figure 14 Stepper motor control

Jumper for current level setting normally set towards the centre of the board for 5.6 A.
To reduce heat, the current for the loop motor could be set to 4A for small labels and low production rate.
The jumper for the stepper resolution is open.
For connection with an old 6 pole cable, plug in the connector that the ready output is not used.

WARNING! - The electronic is driven by high voltage.

- **Don't touch the board if the machine is switched on.**
- **The operation of the board is only allowed with connected motor.**
- **Don't handle any connector or jumper during operation.**
- **It is strictly prohibited to do any modification or repair onto the board. Especially the fuse should not replaced and the pot should not be disadjusted.**

6.4 CPU - board

The LED's of CPU-board indicated the following functions:

D1 error output active (only valid if a minimum load of 10kΩ on all outputs of CN10)
D2 24 V in order
D3 12V in order
D4 5V in order

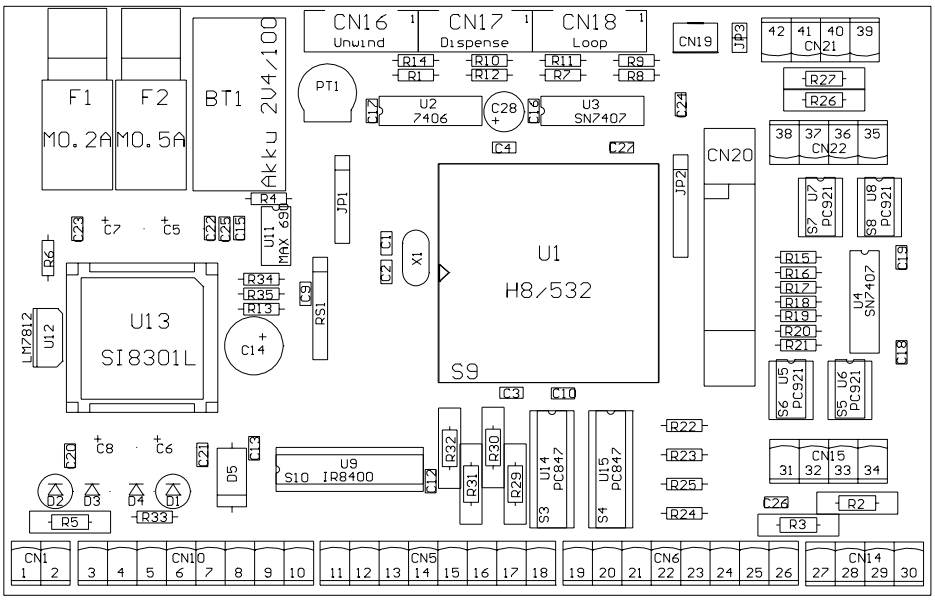


Figure 15 Layout CPU board

Plug connector (in- and output ports)

CN 1 24 V supply voltage
CN 5 Opto coupler inputs
CN 6 Opto coupler outputs
CN 10 PNP output driver
CN 14, 15, 22: Opto coupler sensor inputs
CN 19 or 21: Label sensor alternatively you may use one of the 2 plugs for connecting a label sensor. If standard label sensor is in use, jumper J3 must be fitted, in order to have 12 V supply voltage available. Other label sensor must be connected to CN 21 and J3 taken off, to ensure 24 V supply voltage.

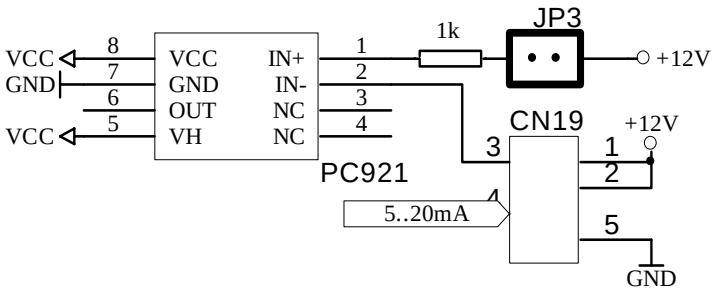
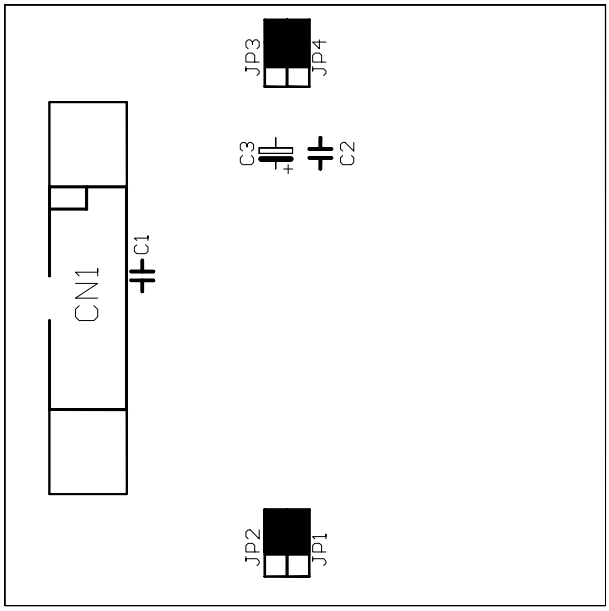


Figure 16 Label sensor

6.5 Display

All jumpers have to be in the upper position.



6.6 Description of I/O signals

The external I/O signals are connect to the terminal on the CPU board Figure 18.
All input are electrically separated by opto couplers. NPN and PNP sensor output can be connected shown in Figure 17.

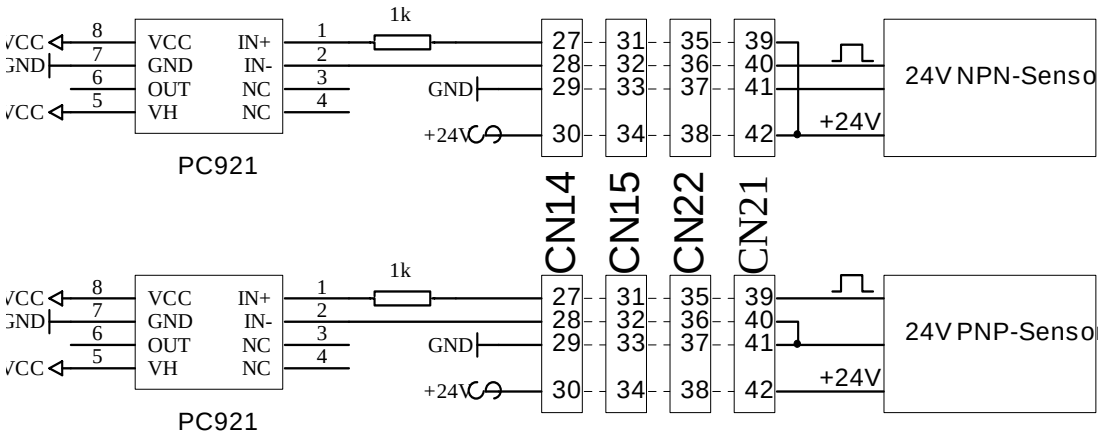


Figure 17 Sensor connection

There are two type of output

- Opto coupler driving up to 50mA
- High side driver PNP type outputs supplying up to 1A.

Ready This output is on, if the labeller is powered on, the condition is online and no error is active.

Warning The function of the output depends on the selected modes in the configuration:
Tandem mode off: This output is on if any warning condition is meet.
Tandem mode on: Output for tandem operation

Error This output is turned on, if a error condition exist.

Printer (CN6) This output is switched on every time a label is dispensed. The active time is 50ms.

Inhibit If this input is active, a signal from the product sensor will be ignored.

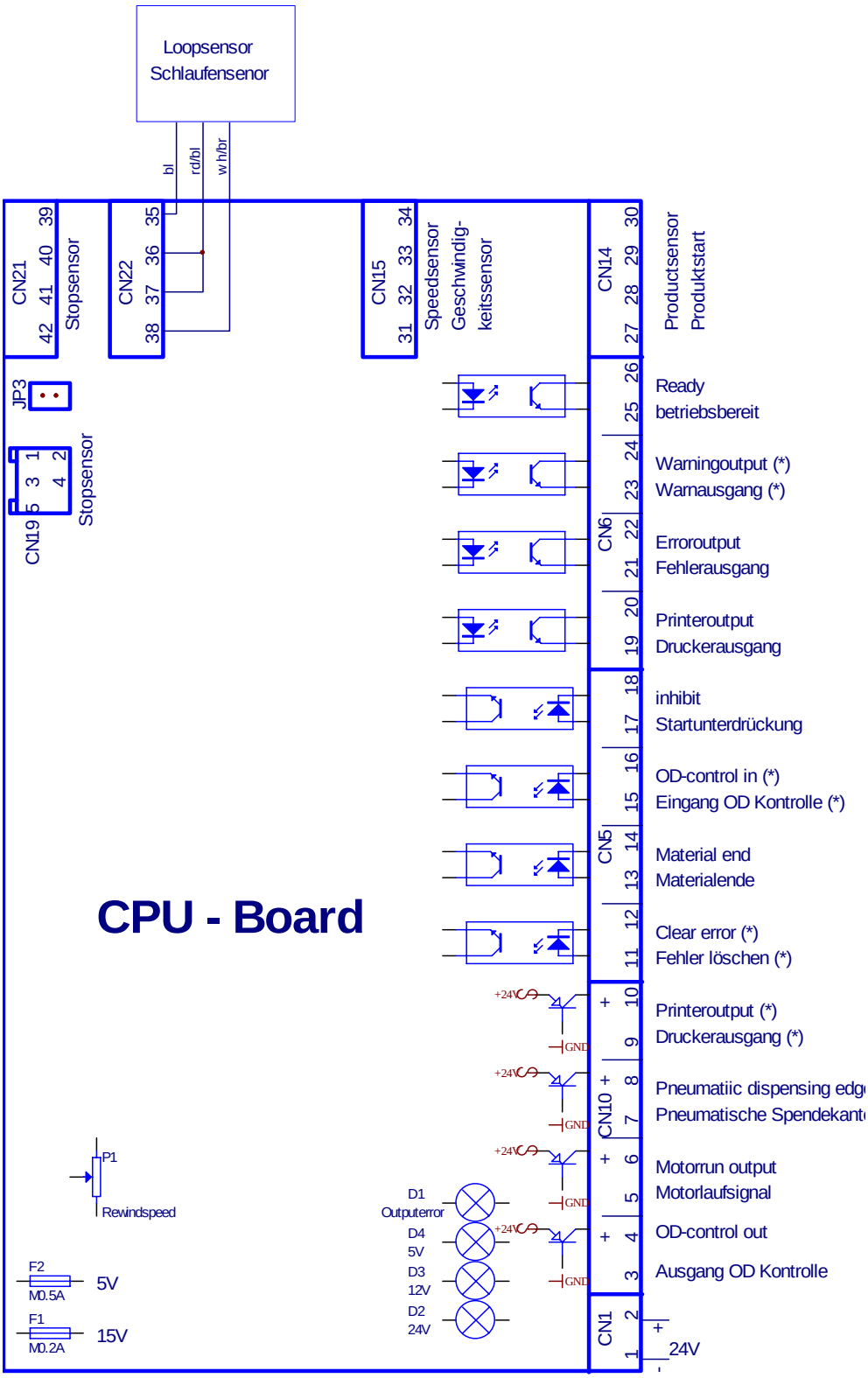
OD-input If this input is active, a warning will be displayed and the OD-output switched on.

Printer (CN10) Print signal like the printer output.

Pneumatic-Edge This signal is active, if a label is dispensed.

Motor run The signal is active if the dispense motor is running.

OD-output The output is active, if the OD-input is active.



(*) The function depends on selected mode
(*) Die Funktion wird durch die eingestellte Betriebsart bestimmt

Figure 18 I/O Terminal

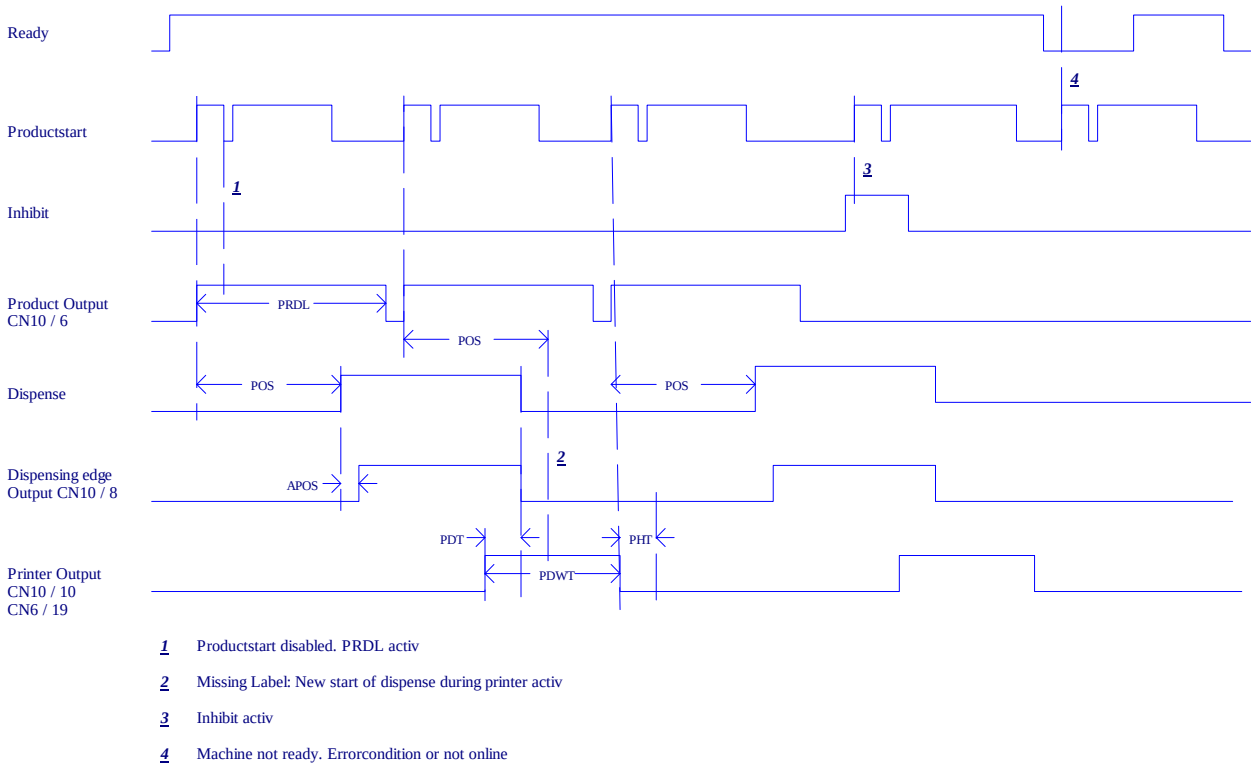


Figure 19 Timing diagram

6.7 EMI

To protect the machines against electrical noise and to protect production of electrical noise you have to follow these rules:

Rule 1
All metallic parts must have a good and plane contact (no lacquer, aluminium oxide is an isolator). Use scratch washers.

Rule 2
A signal line (Data-, communication- and control cable) has to separate to power cables. The minimum distance is 50 cm (20 cm inside a cabinet).

Rule 3
All signal lines should be lead in the machine or cabinet only on one side.

Rule 4
Unshielded cables must be twisted (both poles).

Rule 5
On all inductive components (relays, valves) must be directly connected a clamp circuit (diode, MOV).

Rule 6
All signal lines must be shielded. The shield must have a good earth connection on both sides. For the connection use metallic clamps. Don't use a soldered wire for this connection.
In case of different earth potential on both cable sides install parallel a cable of at minimum 10 mm^2.

Rule 7
The shield of analogue cable (Video etc) should be shielded only on one side. Normally there are no such cables with labelling machines.

Rule 8
Line filter has to be mounted directly on the cable entry.

Rule 9
Cables should not fly in the air. Lead all cables nearby metallic, grounded parts. Ground unused cables and wires in a cable at minimum on one side, better on both.

Rule 10
Cables should not be longer as necessary.

7. Maintenance

The labeller has a minimum of movable parts, which ensures a minimum of maintenance required.

7.1 Cleaning

A weekly check of the following is recommended:

1. Clean all rollers from glue and labels. Use a solvent or alcohol
2. Use a soft brush for cleaning all photocells (loop sensor, label sensor and product sensor).
3. Clean the dispensing edge of adhesive residue and paper dust with alcohol or solvent.
4. Clean paper brake brush and plate to ensure even tension. Use solvent or alcohol.
5. Reverse paper brush if brush is pretended.

7.2 Adjustment of rewind function

For the rewind control only a combined adjustment of mechanics and electronic is necessary.

Function of the rewind: The speed of the rewind is controlled via a sensor that supplies signals to the CPU-board. The CPU-board supplies control signals to the AC motor system. A dancer arm driven coder disk with light and dark segments moves through the rewind sensor. Depending on the amount of light the rewind sensor receives, a proportional signal is supplied to the CPU-board.

1. Move the dancer arm in position as shown in Figure 20 picture 1.
2. Rotate coder disk according to Figure 20 picture 2(unscrew the two screws before rotating and fasten in drawn position.
3. Move dancer arm to max loop position.
4. Adjust by means of the potentiometer P1 the speed of the rewind mandrel to a maximum speed of 55m/min (380 = 100m/min). If the average speed of your application is lower, for optimised smooth operation adjust accordingly. If error E_04 appears on the display value between 200 to 250.
5. You may check the proper function of the rewind sensor under function RWCH in the configuration menu. Dancer arm in min position display value 0000. Dancer arm position between min and max position are producing values between 0 and 200, depending on which section of the coder disk is in the rewind sensor.

Potentiometer P1
The potentiometer P1 is located on the CPU board. By means of P1 you adjust the rewind speed.

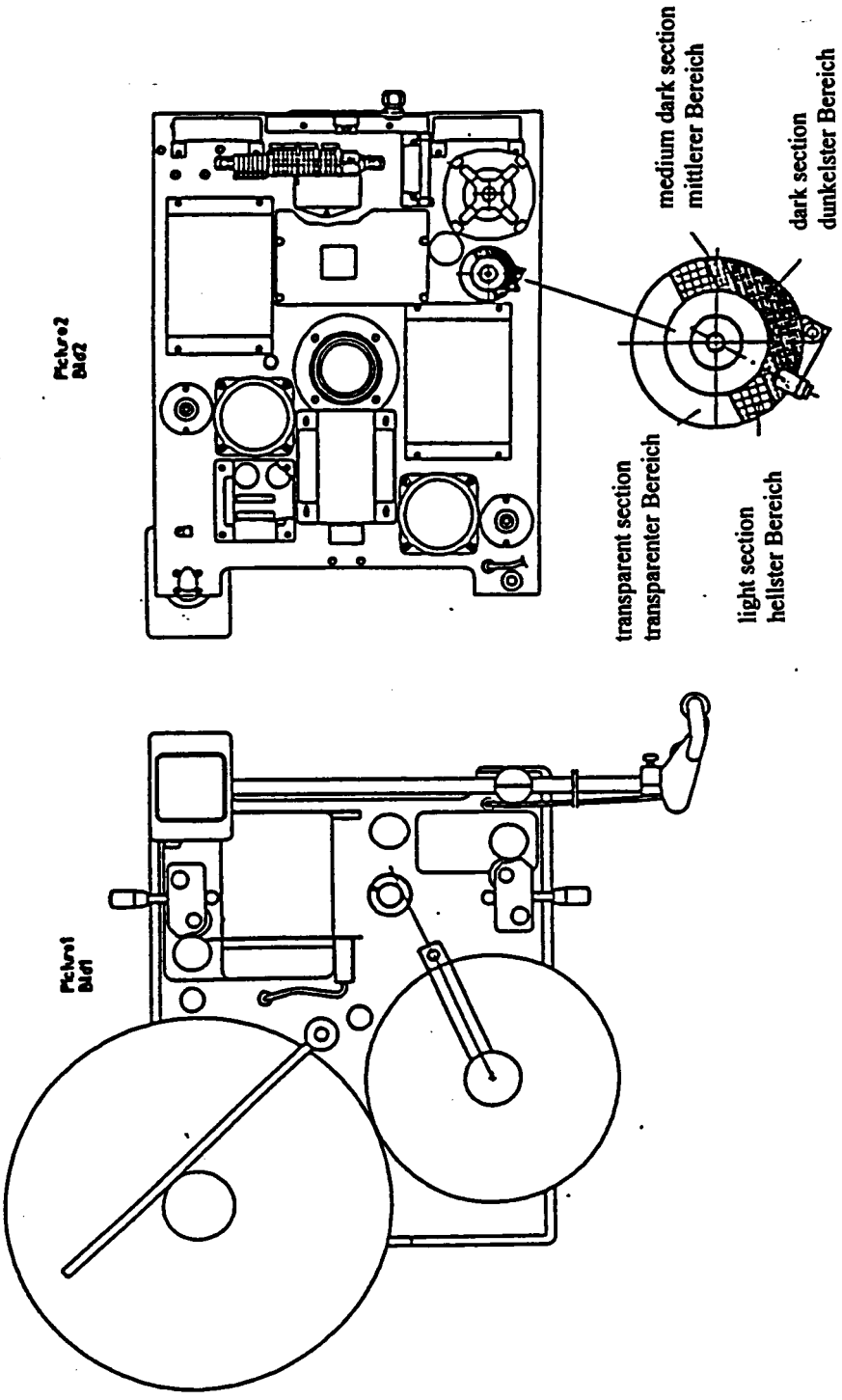


Figure 20 Rewind adjustment

8. Technical Specification

Label width (incl. backing paper)	10 - 1552 mm
Label length	Min. 16 mm, max. 250 mm at max speed, 350 mm at lower label rates per minute rate – average speed should not exceed 50% of labelling speed.
Label unwind outside diameter	max. 400 mm
Label unwind inside diameter	76.2 mm
Backing paper rewind	collapse driven
Label stop accuracy at dispensing edge	+/- 0.5 mm
Label cycles/minute	see charts
Drive system	IP41: 2 stepper and 1 AC motors IP54: 3 stepper motors
Labelling speed	up to 55 m/min
Electronics	integrated
Label sensor	IR-fork sensor
Minimum distance between label sensor and dispensing edge	10 mm
Control functions and diagnostic	adjustable via operators panel
Mechanical execution	right or left hand
Dispensing edge	L form
Side plate	15 mm plate aluminium anodised
Rear cover	PUR material
Dimensions (W*H*D mm)	735*795*400
Weight	70 kg
Protection class	IP 41 / IP 54 optional
Operating environment	5 – 40°C, storage 0 – 70°C 30 - 80%, non condensing
Power consumption	500 VA
Mains voltage	110 / 120 / 130 / 200 / 220 / 230 / 240 VAC 50 /60 Hz

8.1 Application specification

The labeller is designed and built for automatic applying of self-adhesive labels.

8.2 Advice for security

In order to avoid any risk of injury due to squeezing between the fixed dispensing edge and the passing product, it may be necessary to add a protection cover in front of the dispensing edge. The necessity for this has to be decided on case by case.

8.3 Performance

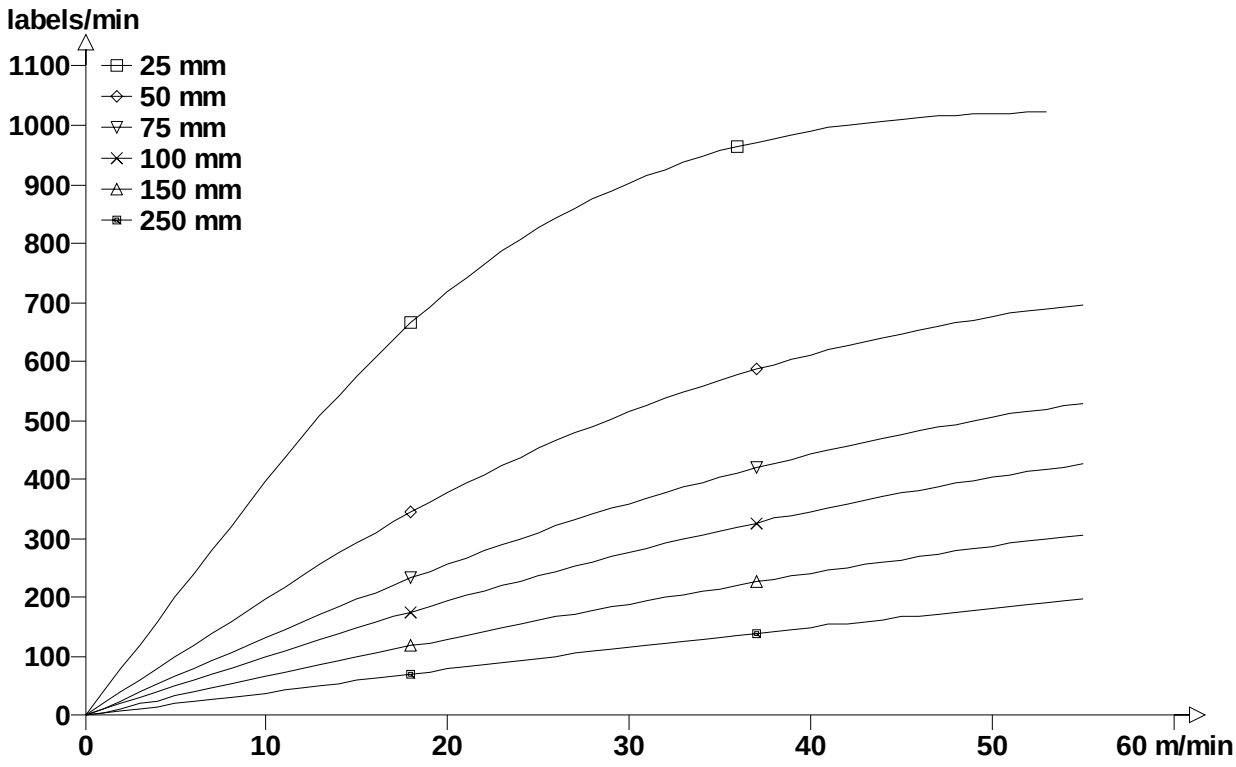


Figure 21 Labelling rate

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10. CE Declarations

KONFORMITÄTSERKLÄRUNG

AVERY Maschinen GmbH
Ohmstraße 3
85385 Eching

Wir erklären in alleiniger Verantwortung, daß das Produkt	
Produktart:	**Etikettiermaschine**
Maschinenbezeichnung:	**Etikettenspender**
Maschinentyp:	**ALS 341**
Seriennummer:	**09250-0x-xxxx**

mit den folgenden Normen und normativen Dokumenten übereinstimmt

- 89/392/EWG Maschinenrichtlinie

  geändert durch: 91/368/EWG; 93/44/EWG; 93/68/EWG

Hierfür wurden nachstehende harmonisierte Normen angewandt

- EN 60204 Teil 1 (VDE 0113) Niederspannungsrichtlinie
- EN 292 Teil 1 und 2 Sicherheit von Maschinen
- EN 294 Sicherheitsabstände
- EN 418 Sicherheit von Maschinen
- EN 50081-1 und EN 50082-2 Störfestigkeit

Hinweis und Einschränkung für diese Erklärung:

Diese Konformitätserklärung gilt nur für diese Etikettiermaschine und nicht für Maschinen im Umfeld oder in Kombination mit dem Etikettierer. Ist die Etikettiermaschine Bestandteil einer größeren Maschineneinheit, also darin integriert, muß der Hersteller der gesamten Maschineneinheit eine Konformitätserklärung für diese Maschineneinheit ausstellen. Aus der Tatsache, daß diese Maschine **CE** gekennzeichnet ist, kann nicht abgeleitet werden, daß eine CE-Konformität der gesamten Maschineneinheit gegeben ist. Besondere Beachtung sollten in diesem Zusammenhang die oben aufgeführten Richtlinien, Normen und Spezifikationen (ohne Anspruch auf Vollständigkeit) finden. Diese Konformitätserklärung verliert ihre Gültigkeit, wenn bauliche Veränderungen vorgenommen werden, die nicht vom Hersteller durchgeführt wurden.

Eching, 13. Mai 2003

Ferdinand Pranckh
(Werksleitung)

DECLARATION OF CONFORMITY

AVERY Maschinen GmbH
Ohmstr. 3
85385 Eching

We declare under our exclusive responsibility that the product	
Product:	**Labelling machine**
Type of product:	**Labeller**
Machine name:	**ALS 341**
Serial number:	**09250-0x-xxxx**

is in conformity with the following standards:

- 89/392/EWG Machinery directive

  changed by: 91/368/EWG; 93/44/EWG; 93/68/EWG

and the below mentioned documents have been applied:

- EN 60204 Part1 (VDE 0113) Low voltage regulation
- EN 292 Part 1 and 2 Safety requirements
- EN 294 Save headway
- EN 418 Safety
- EN 50081-1 and EN 50082–2 Generic immunity standard

Comments and restriction for this declaration:

This declaration of conformity is valid only for this labelling machine and not for the machines used or installed in combination with or associated with the labeller.

If the machine is part of a larger machine system, i.e. integrated into a machine system, the manufacturer of the complete machine system must make a declaration of conformity for the complete system.

Attention should be paid to the specifications, rules and standards as given above in addition to the preceding declarations

This declaration of conformity is no longer valid, if any changes are made to the machine which are not under the control of and agreed upon, with the manufacture of the machine.

Eching, 13.5.2003

Ferdinand Pranckh
(Plant manager)

DECLARATION DE CONFORMITE

AVERY Maschinen GmbH
Ohmstraße 3
85385 Eching

Nous déclarons sous notre seule responsabilité que le produit	
Produit:	**Machine d'étiquetage**
Type de produit:	**Etiqueteuse**
Nom de la machine:	**ALS 341**
No. de série:	**09250-0x-xxxx**

est en conformité avec les normes suivantes:

- 89/392/EWG Directives machinerie

  révision: 91/368/EWG; 93/44/EWG; 93/68/EWG

et que les documents mentionnés ci-dessous ont été considérés:

- EN 60204 Partie1 (VDE 0113) : Réglage basse tension
- EN 292 Parties 1 et 2 :Normes de sécurité Principes de Conception
- EN 294 : Distances de protection des membres supérieurs
- EN 418 : Sécurité.
- EN 50081-1 et EN 50082-2 : Directive générale Immunité.

Remarques et restrictions à cette déclaration

Cette déclaration de conformité est valide seulement pour la machine mentionnée ci-dessous et non pour les machines utilisées ou installées en combinaison ou associées à cette machine.

Si la machine fait partie d'un ensemble, c'est-à-dire est intégrée dans une machine complète, le fabricant de cette machine doit établir une déclaration de conformité pour cet ensemble complet. L'attention doit être portée aux spécifications, règles et normes mentionnées ci-dessus en addition à la présente déclaration.

Cette déclaration de conformité devient caduque si une quelconque modification a été apportée à cette machine sans le contrôle et l'agrément du producteur.

Eching, 13.5.2003

Ferdinand Pranckh
(Directeur d´usine)

CONFORMITEITSVERKLARING

AVERY Maschinen GmbH
Ohmstr. 3
85385 Eching

Wij verklaren onder onze uitsluitende verantwoordelijkheid dat het produkt	
Produkt:	**Etiketteermachine**
Type produkt:	**Etiketteerkop**
Naam machine:	**ALS 341**
Serienummer:	**09250-0x-xxxx**

Conform is met de volgende standaards:

- 89/392/EWG Machinerichtlijn

  gewijzigd door: 91/368/EWG; 93/44/EWG; 93/68/EWG

De hierna genoemde documenten zijn in aanmerking genomen:

- EN 60204 Part1 (VDE 0113) Low voltage regulation
- EN 292 Part 1 and 2 Safety requirements
- EN 294 Save headway
- EN 418 Safety
- EN 50081-1 and EN 50082–2 Generic immunity standard

Opmerkingen en beperkingen :

Deze conformiteitsverklaring geldt uitsluitend voor de ALS330 en niet voor machines die in combinatie met de ALS 341 worden gebruikt of geinstalleerd, of eraan worden gekoppeld. Indien de ALS 341 deel uitmaakt van een groter machinesysteem, i.e. geintegreerd is in het machinesysteem, moet de fabrikant van dit volledige machinesysteem een conformiteitsverklaring afleggen voor het gehele systeem.

In dit verband moet bijzondere aandacht worden besteed aan de vermelde richtlijnen, normen en specificaties (zonder aanspraak op volledigheid). Deze conformiteitsverklaring verliest haar geldigheid indien wijzigingen worden aangebracht aan de ALS 341 die niet gecontroleerd of toegelaten zijn door de producent.

Eching, 13.5.2003

Ferdinand Pranckh
(General Manager)